Bacillus thuringiensis kurstaki (Btk)
Health Questions and Answers

A fact sheet by the
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

Q What is Bacillus thuringiensis kurstaki (Btk)?

A: Bacillus thuringiensis kurstaki (Btk) is a subspecies of a naturally-occurring bacterium, Bacillus thuringiensis, commonly found in soil and plants. It is used as a biological insecticide to control crop-damaging moths.

Q: How does Btk work?

A: Btk affects only leaf-eating caterpillars. It has no effect on adult insects. Btk does not kill the insect on contact, but instead must be ingested to be effective. When ingested, proteins produced by Btk that are harmful to caterpillars damage their digestive systems, causing them to stop feeding and die. This effect is specific to the caterpillars. The digestive systems of humans and other mammals differ from caterpillars, and as a result, they are not harmed by the proteins.

Q: What ingredients are present in Btk products?

A: Btk products like the bioinsecticide Dipel® are made up of the Btk bacterium, in addition to other ingredients that improve the product's storage, spraying, and adhesive properties. All the ingredients in Dipel® are approved by the U.S. Environmental Protection Agency (U.S. EPA) for use on both food and non-food crops. Some of the other ingredients are also approved for use as an additive in food by the U.S. Food and Drug Administration.

Q: Are Btk products available to home gardeners?

A: Yes. You can purchase Btk products, such as Dipel®, Thuricide®, Caterpillar Attack®, and other similar products in plant nurseries or order them on the internet. As with all pesticide products, it is important to read the product labels carefully and follow instructions for use.

Q: Can I continue to eat the food from my garden or fruits collected from my orchard after a Btk application? How long will Btk stay on my trees and lawn?

A: U.S. EPA has done a thorough evaluation of Btk and determined that it is safe to use on all types of food crops. Most Btk products are certified by the Organic Material Review Institute for use on organic crops, and can be used on food produce without restriction. Treated vegetables and fruits may be picked a few hours after spraying, and washed and consumed thereafter. On commercial farms, agricultural workers are permitted to re-enter fields four hours following Btk treatment, and crops can be harvested the same day they are treated.

Btk applied on tree foliage is destroyed by sunlight and microbial activity within a few days.

Q: What are the potential human health effects associated with ground application of Btk?

A: Btk has been shown through scientific studies to have very low acute toxicity. If Btk gets on the skin, it may cause skin redness, rashes or irritation, but the likelihood is low. Btk can cause moderate eye irritation. If it gets into the eyes, flush with clean water for 20 minutes.

Q: If I am concerned about the ground application of Btk, what precautions should I take?

A: Btk works specifically on caterpillars, and health risks to humans are very low. However, if any individuals with known respiratory ailments or other health concerns wish to minimize their exposure, they may do so by staying indoors and keeping doors and windows closed during the ground application. They can enter the treated area after the spray has dried (four hours after application). Follow the guidance and instructions provided by the California Department of Food and Agriculture that is performing the ground application of Btk.

Q: What should I do if I feel sick after the ground application of Btk?

A: You can call the California Poison Control System hotline at 1-800-222-1222 or consult with your physician.

This fact sheet was prepared by the Office of Environmental Health Hazard Assessment (OEHHA) at the California Environmental Protection Agency. For more information on OEHHA, call (916) 324-7572 or visit www.oehha.ca.gov.

…